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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/618,622 | 07/18/2000 | I-Teh Sha | 0325.00377 | 9310 |

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| EXAMINER | |
|---|---|
| CORRIELUS, JEAN B | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2637 | |

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/618,622 | SHA ET AL. | |
| | Examiner | Art Unit | |
| | Jean B Corrielus | 2631 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *28 January 2005* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1 and 5-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14-23* is/are allowed.

6)☒ Claim(s) *1 and 5-13* is/are rejected.

7)☒ Claim(s) *24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

### Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 and 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's prior art fig. 1 in view of Zhang et al US Patent No. 5,600,280 and further in view of Shearer et al US Patent No. 5,126,692.

As per claim 1, Applicant's admitted prior art fig. 1 discloses an apparatus having a circuit for generating a spread spectrum clock signal (see fig. 1 and a vco 18). However, applicant's admitted prior art does not teach that the VCO has an automatically controlled gain and that it also fails to teach that the gain of the VCO varies in response to a frequency of said spread spectrum clock signal and a function curve for said non-linear gain is generated by a predetermined criteria. However, as evidence by Zhang at col. 6, lines 18-30, it is well known in the art for a VCO to include automatically controlled non-linear gain. Given that fact, it would have been obvious to one skill in the art at the time of the invention to include such a teaching in applicant's admitted prior art fig. 1 so as to improve the frequency response of the VCO (amplifier) see col. 4, line 16. Note that, by substituting the regular VCO with a VCO having non-linear gain control

capability, Zhang completes applicant's admitted prior art. As shown in the figure (fig. 1 of applicant's admitted prior art) the clock signal is fed back and would be used to control the gain of the AGC of the VCO 26. And the reason to use the clock frequency of the ss clock signal to control the gain of the VCO would have been the same as the one provided above. Furthermore, Shearer et al teaches the further limitations of generating a function curve for said non-linear gain by a predetermined criteria see fig. 2. Given that fact, It would have been obvious to one skill in the art at the time of the invention to incorporate such a teaching in apllicant's admitted prior art and Zhang in order to determine how quickly the output frequency changes see col. 2, lines 53-55.

As per claims 5 and 6, it would have been obvious to one skill in the art to a parabolic curve or a second degree or higher polynomial as the function curve. The reasons to do would have been the same as provided in reference to claim 1.

As per claim 7, generating a function curve using a computer is old and well established in the art. Given that, it would have been obvious to one skill in the art at the time of the invention to generate a function curve using such a device in order to enhance the reliability of the system.

As per claim 8, applicant's background invention teaches generating the clock signal in response to signal having a frequency from 50 -170 MHZ. see page 4, lines 11.

As per claim 9, Applicant's prior art fig. 1 teaches the use of a single set of ROM codes 24.

As per claim 10, Applicant's prior art fig. 1 teaches that said ROM codes determine a frequency modulation profile for said ss clock.

As per claim 11 said circuit includes a divider 20.

As per claim 12, Applicant's prior art fig. 1 teaches that said ROM control said divider 20.

3. Claim 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's prior art fig. 1 in view of Zhang US Patent No. 5,600,280.

As per claim 1, Applicant's admitted prior art fig. 1 an apparatus having a VCO 18 for generating a spread spectrum clock signal, See fig. 1, in response to a control signal VIN; a control circuit (12, 14, 16, 20, 22 and 24) configured to generate said control signal VIN in a response to a reference signal REF said spread spectrum clock signal and a set of Rom codes see fig. 1. However, applicant's admitted prior art does not teach that the VCO has a non linear gain that is automatically controlled and varied in response a frequency of said spread spectrum clock signal. However, as evidence by Zhang at col. 6, lines 18-30, it is well known in the art for a VCO to include automatically controlled non-linear gain. Given that fact, it would have been obvious to one skill in the art at the time of the invention to include such a teaching in applicant's admitted prior art fig. 1 so as to improve the frequency response of the VCO (amplifier) see col. 4, line 16. Note that, by substituting the regular VCO with a VCO having non-linear gain control capability, Zhang completes applicant's admitted prior art. As shown in the figure (fig. 1 of applicant's admitted prior art) the clock signal is fed

back and would be used to control the gain of the AGC of the VCO 26. And the reason to use the clock frequency of the ss clock signal to control the gain of the VCO would have been the same as the one provided above.

### *Allowable Subject Matter*

4. Claims 14-23 are allowed.

5. Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### *Response to Arguments*

6. Applicant's arguments filed 1/28/05 have been fully considered but they are not persuasive. It is alleged that Zhang does not teach a voltage controlled oscillator having automatically controlled non-linear gain. However, it is noted at col. 6, lines 18-30, that Zhang teaches such claimed limitation. It is further alleged that Shearer et al does not teach the limitation of a function curve of said non-linear gain is determined according to a predetermined criteria. However, fig. 2 of Shearer et al shows a function curve of a non-linear gain determined according to a predetermined criteria. See col. 2, lines 40-67.

### *Conclusion*

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Maxi-Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-3086. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jean B Corrielus
Primary Examiner
Art Unit 2637
3/31/05